

Claims:

1. A method for reducing the in vivo toxicity of an anticancer agent selected from the group consisting of oxaliplatin and doxorubicin comprising the steps of
5 administering to an individual in need of treatment a therapeutically effective dose of the anticancer agent and a selenium compound wherein the toxicity induced by the anticancer agent is less than the toxicity induced in the absence of administered selenium compound.
- 10 2. The method of claim 1, wherein the anticancer agent is doxorubicin.
3. The method of claim 1, wherein the anticancer agent is oxaliplatin.
4. The method of claim 1, wherein the selenium compound is seleno-L-
15 methionine.
5. The method of claim 1, wherein the selenium compound is methylselenocysteine.
- 20 6. The method of claim 1, wherein the selenium compound is administered at a time selected from the group consisting of prior to administration of the anticancer agent, during administration of the anticancer agent, following administration of the anticancer agent and a combination thereof.
- 25 7. A method for using an anticancer agent selected from the group consisting of oxaliplatin and doxorubicin at a higher than therapeutic dose comprising the steps of administering to an individual in need of treatment a higher than therapeutic dose of the anticancer agent and a selenium compound, wherein the toxicity of the anticancer agent is reduced with the administration of the selenium compound.
- 30 8. The method of claim 7, wherein the anticancer agent is doxorubicin.

9. The method of claim 7, wherein the anticancer agent is oxaliplatin.
10. The method of claim 7, wherein the selenium compound is seleno-L-
5 methionine.
11. The method of claim 7, wherein the selenium compound is
methylselenocysteine.
- 10 12. The method of claim 7, wherein the selenium compound is administered at a
time selected from the group consisting of prior to administration of the anticancer
agent, during administration of the anticancer agent, following administration of the
anticancer agent and a combination thereof.